Open Transport 1.0.8: Component Technologies Q & A (3/96)

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TOPIC -----

This article is a series of questions and answers on the component technologies in Apple Open Transport.

Open Transport 1.1 is now available, and Apple recommends upgrading to it. Also refer to Open Transport 1.1 Reference Questions and Answers Tech Info Library articles for the most recent information.

DISCUSSION -----

Question: What technology components comprise Open Transport?

Answer: Open Transport supports LANs and WANs and will integrate serial communications, modems, and remote (dial-up) networking in a consistent model for end-users, network managers, and developers. The Open Transport architecture consists of:

- standards-based programming interfaces for applications developers and for network interface controller developers,
- a new cross-platform development model for integration of networking with the underlying operating system,
- new implementations of Mac OS protocol stacks,
- new human interface applications and control panels, and
- a set of backward-compatibility support modules.

Question: What standards are implemented in the Open Transport architecture?

Answer: Open Transport brings standards-based networking into the Mac OS with support for:

- the X/Open Transport Interface (XTI), the POSIX compliant API for support of networking applications,
- a port of a UNIX System V release 4.2 compatible STREAMs environment for network protocol developers, and
- the Datalink Provider Interface (DLPI), for development of network interface controller (NIC) drivers.

Question: Did Apple develop the STREAMs environment for Open Transport?

Answer: To maximize the stability, performance, and robustness of Open Transport, Apple selected Mentat Inc. -- the leading supplier of high performance kernel-level network software -- to supply both the STREAMs environment and the code base for Open Transport/TCP.

Mentat Portable STREAMs (MPS) is an independent fast, full-featured, multiprocessor safe version of the UNIX System V Release 4 STREAMs environment. Its inclusion in Open Transport provides a reliable platform for Open Transport protocols, including Apple's own implementation of a STREAMs-based AppleTalk stack. MPS also allows easy porting from other platforms of third party protocols. MPS is the same implementation of STREAMs found inside many UNIX operating systems including those from IBM and OSF, as well as other platforms such as Novell NetWare.

Mentat TCP (MTCP) is a robust implementation of TCP/IP that conforms with all industry standards, and makes a significant contribution to the performance and functionality of Open Transport/TCP.

Question: Is there more information available about Mentat Inc. and its products?

Answer: Mentat maintains a presence on the world wide web at: http://www.mentat.com

Question: Which protocols are supported by Open Transport?

Answer: Open Transport version 1.0.x includes new, native implementations of AppleTalk, and TCP/IP, and new consistent API access to serial communications.

Apple and third parties are working to add support to Open Transport for Point to Point Protocol (PPP), NetWare (NCP/IPX), Windows 95 (SMB/TCP/NetBIOS), DECnet, LAT, and X.25. Some of these additional capabilities may be incorporated or bundled with future releases of Apple Open Transport (see Future Directions).

Question: What current Mac OS technologies, components, and products will Open Transport replace?

Answer: When installed Open Transport replaces the current Mac OS implementations of AppleTalk and TCP/IP (including the protocols and the "Network", "MacTCP", and "Admin TCP" control panels). Open Transport is also designed to replace the Connection Manager and the Communications Resource Manger of the current Communications Toolbox architecture.

Sometime after Open Transport ships as a shrink-wrap software package for the installed base of Macintosh systems, it is planned to replace the "AppleTalk Connection for Macintosh" and "TCP/IP Connection for Macintosh" products.

Question: Is Apple is migrating serial communications away from the Communications Toolbox (CTB)?

Answer: Partially, but not entirely. The CTB File Transfer and Terminal Managers continue to be supported and will be preserved in the Copland OS release -- although on new Open Transport/Serial underpinnings.

Over time, plans call for the CTB Connection Manager and its tools to be phased out in favor of Open Transport. In particular, while the Copland release of the Mac OS is expected to provide support for the Connection Manager APIs, at this time Apple has no plans to port the existing Connection Tools to Copland. Thus, Apple recommends that developers plan their update to Open Transport/Serial (and away from CTB Connection Manager) to coincide with (or precede) the availability of the Copland OS release.

Question: What key files are present when Open Transport has been installed on a Mac OS system?

Answer: When installed, Open Transport adds the following Extensions to the Mac OS System Folder:

- Open Transport Library
  Open Transport code resource for 680x0-based Macintosh systems.
- Open Tpt AppleTalk Library
  Code resource for AppleTalk communication protocol for 680x0-based Macintosh systems.
- Open Tpt Internet Library
  Code resource for TCP/IP communication protocol for 680x0-based Macintosh systems.
- OpenTransportLib
  Open Transport code resource for PowerPC-based Macintosh systems.
- OpenTptAppleTalkLib
  Code resource for AppleTalk communication protocol for PowerPC-based Macintosh systems.
- OpenTptInternetLib
  Code resource for TCP/IP communication protocol for PowerPC-based Macintosh systems.
- Ethernet (Built-In)
  Code resource to allow access to built-in Ethernet port.
- Serial (Built-In)
  Code resource to allow access to built-in serial port.

Question: Are there any changes in AppleTalk or TCP/IP with Open Transport?

Answer: Yes. The new Open Transport/AppleTalk and Open Transport/TCP protocol stacks both have been implemented as Open Transport STREAMs modules and as native code on Power Macintosh computers. They support the new XTI APIs, and their shared libraries can be dynamically loaded and unloaded as needed.

Both protocols also support dynamic reconfiguration (changed settings without requiring reboot), and feature new configuration applications offering Basic, Advanced, and Administrator tools. The new configuration applications -- AppleTalk and TCP/IP -- replace the older control panel implementations -- Network, MacTCP, and AdminTCP. For backward compatibility purposes, the new applications continue to be stored in the Control Panels folder in the System Folder.

Each protocol stack also offers addition protocol-specific feature enhancements.

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